

ART. IV.—*Notes on a Protozoon Parasite found in the Mucous Membrane of the Abomasum of a Sheep.*

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(With Plate III).

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The parasite was encountered during an investigation into the cause of a disease of the Braxy group affecting Tasmanian sheep, for which I have in a report to the Minister for Agriculture in that State suggested the name "Malignant Transudation." This parasite, however, appeared to have no pathogenic significance. It was encountered in sections of a portion of stomach wall, showing necrosis and ulceration, but in the comparatively healthy area.

To the naked eye, no evidence of its presence can be detected, at first sight, in the sections. Although situated in the mucosa, it does not cause any discernible elevation. It was, therefore, encountered purely by accident, and unfortunately only three sections out of a large number mounted show its presence.

Description.—A minute cyst, composed of a very delicate, faintly-laminated cyst wall, enclosing groups of sporozoites.

The cyst is somewhat oval, the long diameter being in the direction of the gastric glands. It measures 0.5 mm. by 0.3 mm. The contents consist of masses of small sporozoites arranged radially around a minute portion of residual protoplasm. Each sporozoite is about 4 to 6 microns long and 0.5 microns broad. Distinctly spindle shaped, with extremities tapering to a fine point, each is provided with a central oval nucleus. They are readily stained by the ordinary stains. Flagella cannot be definitely distinguished, although here and there certain sporozoites appear to be flagellated.

Nature of the Parasites.—At first sight one is struck by the similarity to colonies of *Herpetomonas* and to certain stages of the Malaria-parasite in *Anopheles*, but there is no evidence whatever of a blepharoplast or centrosome.

Dr. Mesnil, of the Pasteur Institute, Paris, to whom I forwarded a section for his opinion, agrees with this, but considers the resemblance much greater to certain stages of parasites of the intestines of some crustaceans, known as *Aggregata*. Indeed, he states that on comparing the two, “the resemblance is striking.” As he suggests, it is more than possible that the parasite in question is a schizogonic stage in the evolution of some parasitic sporozoon of the sheep. Now as there is one sporozoon which is extremely common in my experience, not only in the sheep, but in cattle and pigs in Australia—viz., the sarcosporidium, the life history of which is extremely obscure, the possibility of its being a stage in its evolution is worthy of consideration. In almost every portion of muscle which I have examined microscopically in Australia, I have found some fibres affected with sarcosporidia. Their further study is therefore a matter of some economic as well of scientific importance. Unfortunately, the minute size of the stomach cyst renders an investigation into the parasite mentioned a matter of extreme difficulty, but it should not be unsurmountable.

EXPLANATION OF PLATE III.

Upper Figure.—Section of stomach mucosa, showing cyst.

Lower Figure.—Groups of Sporozoites showing radiate arrangement.

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It is interesting to note that in a private communication received from Dr. Mesnil since the above article was read, he states that the cysts have now been found to exist in the fourth stomach of sheep slaughtered in the Paris abattoirs. His assistant, M. Chatton has made a very complete study of them, which will be published shortly.